selected from the group consisting of Al, Co, Ni, Mg and Fe, $0 \leqq x \leqq 1.2$, $0 < y \leqq 0.1$ and $-0.2 \leqq z \leqq 0.2$). Preferably, M1 in the compositional formula $Li_xMn_{2-y}M1_yO_{4+z}$ is at least one of Al and Mg.

Examples of second oxides include complex oxides represented by the compositional formula $Li_aM2_bNi_cCo_dO_2$ (where M2 is at least one element selected from the group consisting of Al, Mn, Mg and Ti, $0 < a < 1.3$, $0.02 \leqq b \leqq 0.3$, $0.02 \leqq d/(c + d) \leqq 0.9$ and $b + c + d = 1$). Preferred among them are those which contain Al in the place of M2 and satisfy $0.1 \leqq d/(c + d) \leqq 0.5$ in the compositional formula $Li_aM2_bNi_cCo_dO_2$.

The capacity is suitably maintained at high values, if the aforementioned first and second oxides are mixed in the ratio by weight of 20:80 - 80:20. Within the specified range, the electronic conductivity of the whole is improved and contact between particles of first and second oxides is maintained in a more stable manner, so that deterioration of load characteristics with cycling is suppressed effectively.

The first oxide in the form of a lithium-manganese complex oxide preferably has a mean particle diameter of 5 - 30 µm. The second oxide in the form of a lithium-nickel-cobalt complex oxide preferably has a mean particle diameter of 3 - 15 µm. The combination thereof is most preferred. Preferably, the first oxide has a larger mean particle

diameter than the second oxide. If the mean particle diameter of each oxide is maintained within the above-specified range, contact between particles of those complex oxides is maintained at a higher degree of occurrence to thereby improve the electronic conduction of the mix in its entirety. Also, expansion and shrinkage are balanced more effectively between those complex oxides so that contact between particles of those complex oxides is maintained in a more stable manner. As a result, the deterioration of load characteristics with cycling can be suppressed. The mean particle diameter is determined by observing the positive active material or cathode mix with a scanning electron microscope (SEM), measuring londitudinal dimensions of 5 particles among active material particles present in a 100 μm square and calculating a mean value which is taken as a mean dimension for all particles.

If the above-described configurations and constructions are satisfied properly, nonaqueous electrolyte secondary batteries can be provided which are highly reliable and show little deterioration of load characteristics with charge-discharge cycling.

A nonaqueous electrolyte secondary battery in accordance with a second aspect of the present invention is characterized as using a mixture of a first oxide, second oxide and third oxide for the positive electrode material.

The first oxide is a spinel oxide consisting substantially of lithium, manganese, a metal other than manganese, and oxygen. The second oxide is diffent in composition from the first oxide and consists substantially of lithium, nickel, cobalt, a metal other than nickel and cobalt, and oxygen. The third oxide is diffent in composition from the first and second oxides and consists substantially of lithium, cobalt, a metal other than cobalt, and oxygen.

The second aspect of the present invention is described below.

The first and second oxides used in the first aspect of the present invention are applicable to this second aspect.

Specific examples of third oxides include lithium-cobalt complex oxides and oxides derived via substitution of other element for a part of cobalt in lithium-cobalt complex oxides.

Also in the second aspect, the use of the same first and second oxides used in the first aspect suppresses the deterioration of load characteristics with cycling for the same reasons adduced in the first aspect.

In the second invention, the third oxide is further mixed with the first and second oxides. The increased electronic conductivity of the third oxide relative to the first and second oxides is effective to further suppress deterioration of load characteristics with cycling (See, for